Declassified and Approved For Release 2012/04/06 : CIA-RDP82-00039R000100020096-4

REVISTELE TEHNICE AGIR

Vol. II, No.5, September - October 1948

# The use of closed runners in casting of steel.

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Metal, in passing from the liquid to the solid state, goes through three stages:

Contraction in the liquid state

Contraction in the liquid-solid state

Contraction in the solid state.

Contraction in the second phase necessitates the use of runners which function as reservoirs of liquid metal and fill the empty spaces formed as a consequence of the contraction and protect the casting from the formation of cavities.

The different methods of fusion ( syphon tapping, lateral runners, remelting, blind runners, without atmospheric pressure) were investigated. It was established that the last method of fusion affords the best cooling conditions.

The experimental results, the construction of the runners, and the method of computing the feed elements are described.

The new method can be applied for all kinds of castings, especially with alloys which contract considerably. It involves no technical complications in operation, reduces the cleaning process, assures an economy of 60% in the consumption of molten metal and brings about an orderly crystallization in the structure of the metal. This had not been possible with any other previously used method.

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